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Convergence of Finance, Technology and Entrepreneurship: The Role of Liberal Financial System in the Making of India's New Economic Growth Regime (NEGR)

Jitendra Uttam

This paper discusses how nation-states transform or re-design their economic growth regimes (EGRs). By acknowledging the fact that the structures of finance play an important role in the shaping of EGRs, this paper argues that the introduction of liberal financial system in India is acting as a catalyst in re-designing nation's EGR. It analyzes Indian venture capital industry, an important component of liberal financial system, which is rather successful in mitigating interest conflict between principal/investor and agent/entrepreneur. The resolution of this interest conflict has expressed itself in greater convergence of interests between and among finance, technology and entrepreneurship, which lies at the core of still evolving new economic growth regime (NEGR) in India. This transformed EGR is instrumental in powering India's technology-intensive service sector. Rapid growth in India's knowledge economy, particularly information technology service industry, serves as an empirical evidence.

Keywords: Financial System, Economic Regime, Information Technology Services, India.

1. INTRODUCTION

The structural distinctiveness of financial systems has played a crucial role in shaping and sustaining different economic growth regimes (EGRs).[1] In the post-war years, credit-based financial system provided a solid ground for the 'developmental states' or the regimes of organized capitalism to catch up. Namely, two EGRs emanating from this financial system became famous; one, 'government-business alliance' (GBA) successfully experimented in Japan and many other East Asian economies, and the other, a tripartite 'government, business and labor alliance' (GBLA) prominently visible in Germany. After the crisis in the Fordist economic order, lately, capital market-based financial systems experimented in the US and UK witnessed the formation of 'finance, technology, and entrepreneurs alliance' (FTEA), based on their growing interest convergence.[2] These EGRs have been instrumental in forming coalitions of dominant actors, which have been helpful in propelling decades of

[1] The term economic growth regime (EGR) indicates the alignment of dominant economic actors leading to a greater convergence of economic interests. As the history of economic growth documents that post-war repaid US economic growth resulted from the Fordist economic order based on grand wage-labor nexus based on Keynesian macro-economic management; Germany's fast pace economic growth came as the outcome an alliance of interests among government, business and labor; and East Asia's rapid economic growth phase originated from the convergence of interest between government and business. Thus, here the term EGR means convergence of interests among dominant economic actors to boost economic growth. For details, see Jessop (1989) and Cho and Kim (1998: 125-158).

[2] Crisis in the Fordist model delivered a sever blow to the post-war EGR, when US economy posted rapid growth during the period 1950 to 1971. For details, see Jessop (1989).

rapid economic growth.[3] However, in case of India, its overly socialist leanings hindered the formation of any such type of EGR. Though, in vain, it tried to form an alliance between government and large public sector units (PSUs), to steer the process of development, which could not take off. Rather it produced one of the most heavily regulated economies in the world and thus severely burdened the entire economy.[4]

However, some times a major economic crisis comes as an opportunity to initiate fundamental changes. Beginning 1990s, the collapse of communism and subsequent India's own balance of payments crisis not only came as a rude awakening for the Indian policy makers but it also brought an opportunity to initiate structural economic reforms. Taking this opportunity India started a well-thought and hotly debated economic reform program to move away from the deeply rooted legacy of 'Nehruvian socialism'.[5] A new economic thinking, added by fundamental changes in the areas of technology and finance, opted for a paradigm shift.[6] In the quest to put in place a distinct EGR reflecting national resource endowment, a comprehensive economic and financial restructuring program was initiated in 1991. As a part of this wider move towards installing liberal economic regime, entrepreneurial finance particularly venture capital was introduced in India. This innovative financial logic made possible the supply of risk capital needed to activate India's dormant entrepreneurial spirit. India took its first, though very cautious, steps in the new direction but to the surprise of many quite successfully.[7]

Being the integral part of this whole new economic design, the introduction of liberal financial regime in India helped to mitigate interest conflict between principal/investor and agent/entrepreneur. More specifically venture capital industry paved the way for technological innovation and entrepreneurial surge, which resulted in the greater convergence of interest among and between finance, technology, and entrepreneurship.[8]This study argues that interest convergence between finance, technology and entrepreneurship is at the core of India's evolving new economic growth regime (NEGR), which shares common characteristics with the EGR successfully experimented in the United States.

This paper has been organized in the following way. Section 1 tries to understand, analyze, and explain the process of regime change. By challenging the older, better

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[3] Lately, the dynamism of some of these EGRs seems to falter, particularly East Asian economies are witnessing a slowdown. It's widely acclaimed that government-business alliance has run its course. Also, Germany's organized bargaining based on the government-business-labor alliance shows sings fatigue. For details, see Wade and Veneroso (1998), and Dyson (1986).

[4] During 1970-79, Indian economy grew merely annual 3.45 percent. For details, see C.P. Chandrasekhar, The New Hindu Growth Rate, *Business Line* (Internet Edition), July 10, 2001. http://www.blonnet.com/businessline/2001/07/10/stories/04102010.htm

[5] For details, see Terence (1998: 271-286).

[6] For details, see Aggarwal (1998: 129-149) and Uppal (1993: 33-61).

[7] In the post-reform phase (1990-2000), Indian economy registered 6.5 percent economic growth, which is radically different from the post-independent (1950-1965) phase, when economy grew only 3.5 percent. For details about Indian economic stagnation, see Lal (1998).

[8] In a landmark empirical work Kaplan and Stromberg (2001) study 213 venture capital investments in 119 portfolio companies (firms) by 14 VC partnerships. Study notes that venture capital was successful in mitigating interest conflict between principal and agent. Main findings of the study are consistent with the Aghion-Bolton model, though not necessarily follow from it. For details, see Kaplan and Stromberg. (2001).

established gradualist proposition, which argues that change unfolds in a piecemeal fashion through the incremental accumulation of many infinitesimal changes, this paper outlines theory of "punctuated equilibrium", which views that short bursts of quantum change is interspersed between long periods of stability. This theory offers well-defined analytical tools that are helpful in understanding India's sudden economic regime change. Section 2 reviews structural distinctiveness of financial systems that were instrumental in the formation of EGRs based on the close state-business or state-business-labor relations or convergence of interests between finance, technology, and entrepreneurship. It argues that initial success of EGRs experimented in Japan and Germany based on the efficiency of credit markets and subsequent formation of internal capital markets has plummeted due to the state's inability to continuously mitigate interest conflict between principal and agent by following the costly policy of risk socialization. It shows how the FTEA experimented in the USA has been much more successful. Section 3 evaluates India's repressive bank-based financial system, which largely contributed in its spectacular economic failure. It cites inability of state-controlled, bank-based financial system to create efficient capital market, which could effectively mitigate interest conflict between principal and agent. Furthermore, it argues that unlike many East Asian economies, India's embedded socialist ideology barred state to help create large privately-owned, export-oriented capitalist firms. Section 4 assesses the demonstration effect of FKEA experimented in the United States, which has enormous impact on the thinking about development, entrepreneurship and technological innovation. It also explores India's practical linkages with the US venture capitalism centered in the high-tech industrial clusters such as Silicon Valley, where non-resident Indians became an entrepreneurial force to reckon with. It argues that India is in the technological threshold point where it finds US style FKEA very useful to construct its NEGR.

Section 5 outlines evolution and development of India's liberal financial regime particularly its prominent instrument venture capital, which is powering the growth of many high-tech start-ups. It notes that how the legacy of India's old system hindered the growth of venture capital industry. However, in the 1990s, India's venture capital industry acquired a critical mass to not only self-sustain its growth momentum but also positively influence the make-up of entire economic regime. Section 6 deals with the wider phenomena emanating from the fast developing venture capital industry which is augmenting a convergence between finance, technology, and entrepreneurship. This convergence has culminated into India's NEGR which is transforming the entire national political economic regulatory structure. It argues how contemporary India, largely free from the socialist baggage, sees its potential in enhancing and exploiting entrepreneurial drive of its people. The IT service industry has been cited as a fit case to empirically demonstrate the success of NEGR. Section 7 concludes that the key to understand inner logics behind India's NEGR lies in the workings of entrepreneurial finance, particularly venture capital. It notes that by mitigating interest conflict between principal/investor and agent/entrepreneur, venture capital provides a base for convergence between finance, technology, and entrepreneurship. This convergence provides a firm ground for NEGR, which is propelling India's technological innovation that is clearly visible in the growing knowledge economy and its mainstay IT software service industry.

2. PUNCTUATED EQUILIBRIUM THEORY AND THE CHANGES IN THE EGRS

EGRs undergo change, even fundamental transformation. Cheng (1990; 1993) has argued that *regime dynamics* is understood as the relational maneuvers of leading businesses and government that take place in changing political and economic contexts. Capital and the state adjust their authority patterns and legitimating strategies to these changing environments. Pempel (1998) argues that a regime is composed of three key elements: socio-economic alliances, political economic institutions, and a public policy profile. These components are overlapping, and reinforce each other, and each is essential to the stability of the total system. In some situations elements may be unstable, coalitions may come and go, and new institutions may disappear quickly. But within the post-war industrialized democracies, regime stability has been the general rule.

In this context, it is difficult to understand how and why regimes change? Pempel (1998) argues that any regime is faced with a variety of pressures for change, but not all changes will destabilize a regime; some will merely cause minor adjustments. He recognizes three levels of disturbances in any regime. First order changes are confined to just one of the components of the regime. Adjustments are made, but the essential nature of the regime is unchanged. Second, order changes involve shifts in the two or three domains. These pressures are more severe, but again do not bring about a fundamental transformation. It is only the third order changes, involving all three dimensions — institutional, coalitions, and public policies — that bring about a true regime shift. However, such a shift may take some time, as the forces of change may gather strength and the fundamental contradictions in the existing regime are revealed, and as the new regime emerges, made up of some new elements and some remaining fragments from the old system, but combined in a unique new configuration.

Thus, the explanation of economic regime change requires a refine theoretical framework. Our theoretical search matches with the requirement of other disciplines to understand, analyze, and explain the process of change. Gersick (1991) describes recent shifts in theorizing about the development of human individuals, groups and organizations, and links them to concurrent theoretical developments in the evolutionary biology, physical science, and philosophy of science. The core issue in all these fields is how to conceptualize change. The older, better established gradualist proposition maintains that change unfolds in a piecemeal fashion through the incremental accumulation of many infinitesimal changes. However, the "punctuated equilibrium" view maintains that short bursts of quantum change are interspersed between long periods of stability. Gould and Eldredge (1993) characterize punctuated equilibrium as changes that occur in large leaps. These changes follow a gradual accumulation of stress, which a system resists until it reaches to its breaking point, or until a triggering event precipitates discontinuous change. Past applications of punctuated equilibrium theory in the strategic management literature have focused not only on change at the organizational level (Romanelli & Tushman (1994); Gersick (1991); Miller (1982); and Gresov *et al.* (1993)), but also on change in the external environment (Anderson and Tushman, 1990). In studies of organizational change, punctuated equilibrium theory depicts organizations as evolving through relatively long periods of stability (equilibrium periods). Organizational transformations take place when 'normal' patterns of activity are punctuated by relatively short bursts of fundamental change (revolutionary periods) (Romanelli and Tushman, 1994). These punctuations can arise for a variety of reasons. For example, they

may be caused by political events such as elections, or industry events such as the development of new technologies (Anderson and Tushman 1990), or social discontinuous changes.

Punctuated equilibrium theory has also been used by political scientists to describe the policy making process. Baumgartner and Jones (1993) suggested that the policy-making process is characterized by long periods of stability, which are interspersed with periods of instability and major policy change. They argue that punctuated equilibrium theory provides an explanation of why a political system can be both incrementally conservative and subject to more radical phases of policy-making (Parsons 1995). Thus, punctuated equilibrium theory shows explanatory potential, not only for the study of organizational change, but also for the broader changes in political and economic regimes. For the purpose of this study, we argue that punctuated equilibrium theory is a useful parameter that can refine our understanding about evolving changes in the EGRs.

India's long period of relative stability (1950s-80s), characterized by normal patterns of activity, was punctuated by the burst of fundamental changes, which prompted radical restructuring program from the 1990s. These radical changes initiated new alignment among different economic actors, which culminated in the transformation of entire economic regime. The most prominent aspect of this regime transformation has been the initiation of liberal financial regime.

3. STRUCTURES OF FINANCE AND THE NATURE OF EGRS

Distinct financial structures play critical role in the shaping of EGRs.[9] Strategy and behavior of a firm changes the way it gets financing. For example, if the corporations are assured of long-term sustained financing from state-led, credit-based financial system, as in case of Japan and other East Asian countries, then business will look forward for the long-term strategy in line with government's priority objectives. In this system, more than concentrating on technological innovation, firms actively try to increase market share by ignoring profit ratios and indulge in the relentless diversification via rent-seeking activities. In East Asia this situation led to the "high-debt, high-growth model" (Wade 1990), where state and big business forged close relationship. In the credit-based, institution (financial)-negotiated financial system as in case of Germany; firms can take a longer-term perspective as financial institutions hold block shares and work as government's policy allies. In this system corporations tend to overlook short-term market fluctuations and rely on the agreements achieved by the grand negotiated bargaining between state, business and labor. On the contrary, if the financing of corporate sector depends largely on the capital market-based financial systems, as in the case of USA and UK, then business will try to comply with the dictates of market and focus on profitability through technological innovation. In this system, finance, technology, and entrepreneurship strike a convergence of interests. In all cases, financial system determines the interrelationship between and among major economic actors(Robinson and Wringhtsman 1974). To clarify this interrelation, we outline structural

[9] Number of economists had attempted to introduce financial considerations into the theory of economic growth. For details, see Tobin (1965), Sidrauski (1967), Levhari and Patinkin (1968), and Goldsmith (1969).

distinctiveness of financial systems based on the classification done by Zysman (1983) and accordingly their capacity to influence the nature of national EGRs.[10]

3.1. Capital Market-based Financial System

In this financial system, securities — stocks and bonds — are the predominant source of long-term corporate financing.[11] The central function of bank lending is to serve only short-term credit requirements. In these each distinct market, prices are set in plausibly competitive conditions. Saver and investor meet across the divide of competitive markets, most often with the help of intermediary institutions. Since there is an active stock and bond market in which firms can raise long-term funds, they do not need to pass through the commercial banks to reach the capital markets. Also, they are not dependent on bank credit for long-term projects. The opposite side of this proposition is that, whether by historical circumstances or legal prohibition, financial institutions do not act as owner-managers and do not hold substantial shares of the stock of any particular firm.

The concern of the central bank is primarily with the control of monetary aggregates, be they money supply figures or interest rates. Only secondarily, if at all, bank is concerned with the allocation of resources between competing uses. Though it may seek to control critical aggregates or a few central prices, it leaves the rest of the prices and aggregates to move on their own. The central bank and the commercial banks stand at arm's length from each other and neither the volume nor the allocation of bank lending is directly determined by central bank. The central bank may act as a lender of last resort but it does so only in a very limited way. In situations, when the central bank does intervene, it does so by buying and selling to bring about market conditions that produce the outcome that it favors. It does not attempt to impose these conditions by administrative fiat. This system places banks, firms, and governments in distinct spheres from which they venture forth to meet as autonomous bargaining partners.

Market mechanisms inherent in this system tend to limit both the influence of financial institutions on firms and the influence of governments on the details of the lending activates of banks. They certainly limit government capacity to direct flows through capital markets, with two distinct consequences: first, the government will not have natural handles in the market system by which it can selectively influence the allocation decisions of financial intuitions; second, financial institutions will not have influence inside corporations. Government intervention in the corporate affairs will require specific legislative authorization and will operate outside routine market operations. Consequently, financial community may broadly oppose government interventions as interventionist policies pose threat to the integrity of market arrangements.

Structural similarities with this financial form are quite explicit in the US and UK's financial systems, where financial intermediation lies in the market forces of demand and supply.[12] Capital market-led financial system offers incentives for the venture capital investors to exit. Many venture capital funds make a killing after firm's initial public offer

[10] There are various studies to categorize distinctiveness of financial systems, these include, Melitz (1980), Zysman (1983) and Allen & Gale (2000). Here we chose Zysman's classification as it takes note of the German structural variations too.

[11] For details, see Dimsdale and Prevezer (1994).

[12] For details, see Revell (1973).

(IPO). It is important to note that capital market-based financial system provides firms with access to deep capital pool, and easy route to stock market listing. In this system the corporate competitiveness comes from the market discipline, thus business has no incentive to be in close concert with the government. Instead, to boost profit business needs to move continuously in the technological ladder. Capital markets through innovative entrepreneurial finance such as venture capital funds help entrepreneurs to experiment with their ideas. This process initiates a wider convergence of interests between finance, technological knowledge and entrepreneurial spirit, which provides the basis for FTEA.

3.2. Credit-based, Price-administered Financial System

In this system, market interrelations are dominated by government-administered prices. The stock and bond markets are not easily accessible to private borrowers, though it is often used by the government as a means of raising money for its projects. Given the weakness of capital markets, firms must turn to lending institutions, both specialized lenders and banks, for the funds they need. Indeed banks may serve as crucial access routes to the capital market and general-purpose banks may end up owning or voting much of the stock of important companies. Credit is at the core of the system of corporate finance. Thus, the banking system's ability to extend industrial credit is therefore critical. Government chooses to underpin bank lending and to facilitate money creation. Finally, government sets the prices in the important markets in order to shape the economy's priorities. Since prices are administratively fixed there is an inherent tendency for markets to be in disequilibrium, that is, at the established prices there are too many borrowers or lenders. Then, the balance must be achieved by administrative action that discriminates in favor of some users and against others.

Thus, in this system, credit extended by institutions becomes key to industrial finance and government is drawn in to bolster the system. It appears that the role of government is to compensate for weakness in an existing private financial system. Political implications of this type of arrangement are that the state's intervention in the industry becomes part and parcel of the financial system. The borderline between public and private blurs, not simply because of political arrangements, but because of the very structure of the financial markets.

Financial systems of Japan, Korea and many other East Asian countries resemble the arrangement of this financial system (Woo, Jung-en 1991; Sakakibara *et al*. 1982) In this system, access to finance lies in firm's ability to comply with government's priorities. Thus, this kind of financial system creates incentives for the close government-business relationship, which is the landmark of East Asian EGRs. Rise of large capitalist firms known as 'Chaebol' in Korea, and 'Zaibatsu' in Japan signifies East Asia's close government-business relations (Eugene J. Kaplan 1972). Due to this too tightly knitted government-business alliance, economic literature coined the terms such as 'Korea Inc.' and 'Japan, Inc.'

3.3. Credit-based, Negotiation (Institution)-dominated Financial System

In this system, limited number of financial institutions dominates the system without themselves being dependent on state assistance. Markets, not administrative actions, determine prices, but the movement of prices in the markets reflects this concentration of

financial power.[13] Instead of pursuing allocative objectives, state targets aggregates. The mechanism to do this is through market operations instead of administrative techniques. As a result, the financial institutions have influence in the affairs of companies through their market power in lending and their domination of access to securities markets. Government does not have the apparatus to dictate allocative choices to the financial institutions. Consequently, it has no independent instruments in the financial system with which to influence companies. Banks, however, can serve as policy allies for government, on terms negotiated between the government and finance.

The financial system of Germany represents this structural type where the government does not intervene in the market by administrative directives, however, it influences market outcome through concerted power of financial institutions (Cable 1985). In this system, banks work as government's policy allies to provide system's stability. Financial institutions acting as government policy allies prepare needed base for convergence of interests between business, state and labor. This interest convergence helped to form Germany's famous EGR of post-war period. Table 1 summarizes these interrelationships between the structures of finance and related EGRs.[14]

The above analysis of interrelation between structures of finance and the nature of EGRs suggest a deep-rooted correlation. Thus, the formation of national EGRs cannot be independent from the constraints imposed by its financial structures.

Table 1. Interrelations between structure of finance and national EGRs

Structures of Finance	Intermediation	Country	Type of EGRs
Bank-based, price-administered system	Banking sector	Japan-Korea	GBA
Capital market-led system	Capital markets	USA-UK	FTEA
Bank-based, institution-dominated system	Financial Institutions	Germany	GBLA

Source: Author's conceptualization is based on John Zysman's (1983) classification

4. INDIA'S REPRESSIVE FINANCIAL SYSTEM AND THE EVOLUTION OF ITS OLD ECONOMIC GROWTH REGIME (OEGR)

The structure of Indian financial system shows the dominant position of banking sector in terms of assets, deposits and loans. All the three segments compete in their resource-

[13] German banking represents this type of financial system. For details, see Schneider, Hellwig, and Kingsman (1978).

[14] Allen and Gale (2000) argue that globalization of finance and recent boom in the equity markets have blurred the dividing line between capital market-based financial systems and credit market-based financial systems.

allocation functions, being driven by political logic rather than market discipline. During the post-independent period, financial system in India has been oriented towards meeting developmental objectives without sufficient regard for credit risk, financial soundness and prudential controls. It amounts to high level of financial repression. This repressive financial regime has operated under a policy of pre-emption for public finance, directed credit for public sector enterprises and priority sectors, and controlled interests rates for lending and deposits. Banking system became a policy tool to repress the entire financial system.

After Independence, the Reserve Bank of India (RBI) and the State Bank of India (SBI) were nationalized, with the SBI continuing to play the role of banker to government agencies and companies. Then, in 1969, the next 14 largest banks were nationalized. With the SBI, the state controlled 90 percent of all bank assets. The nationalized banking system became an instrument of realizing socialist distributional objectives. During 1969-91, the financial position of the banks progressively weakened, due to loss-making branch expansions, ever-strengthening unions, over staffing, and politicized loans. Furthermore, civil servants as bank managers were willing to offer below-market interest rates without any performance criteria. This type of arrangement created excessive demand for funds, but, similar to many other developing economies, bankers extended the loans to their safest customers. These were primarily the large firms owned by the government, which operated in the steel, coal, electrical, and other industrial sectors. The other large bank borrowers were the giant family conglomerates such as the Tata, Birla, Reliance Industries, and Dalmia. Lower interest rates often helped to increase the group's economic power, but did not lead to economically efficient decisions about how to deploy capital. Small firms were starved for capital. Indian banking system provided almost no resources for entrepreneurial firms. Table: 2 indicates that the bulk of this capital resides in the banking system and banks were not allowed to supply it as a risk or venture capital.

Table 2. Disposition of Indian capital resources and their availability for venture investing in 1996-97

Types of Funds	Percentage of total	Percentage Permitted for Venture Capital Investment
Currency & bank deposits	50.1	Up to 5 percent, since April 1999*.
Government Securities	9.2	None
Life Insurance Funds	12.3	None
Pension Funds	20.7	None
Privately held Share & Debentures (including Mutual Funds)	7.6	None
Total	100	None

Source: Statistical Outline of India, 1999.

Note: * India's fiscal year begins from the 1st April and end on 31st March.

The history of Indian stock market goes back to the 19th century. In the early part of the 20th century Indian equity markets were very active and financing not only to the banking sector but also cotton and jute trades. According to the World Bank (1989), there were 14 stock markets in India, though Bombay was by far the largest. Stock market in India became an instrument to avoid government's socialist policies and raise corporate funding. In addition to this, motivated by its egalitarian principles, the government supported stock markets as an instrument for reducing the concentration of ownership (due to below market interest rate) in the hands of a few industrial families. Nevertheless, stock market played insignificant role compare to the bank-based credit to the industry.

As a part of comprehensive financial reforms, the Securities and Exchange Board of India (SEBI) was created to regulate the stock market. At the time, there were 6,229 companies listed on all the stock exchanges in India.[15] The reforms and loosening of regulations resulted in an increase in the number of listed companies to 9,877 by March 1999, and daily turnover on the stock exchanges rose to 107.5 billion rupees (US$ 2.46 billion) by December 1999. One important reform was the removal of a profitability criterion as a requirement of listing. To replace the profitability requirement, it was stipulated that a firm would be de-listed if it did not earn profits within three years of listing. This reform meant unprofitable firms could be listed, providing an exit mechanism for investors. Not surprisingly, there was a dramatic increase in the listings of firms, many of which could be considered as high technology.

In terms of equity market experience, India contrasted favorably with most developing countries, which had small, inefficient stock markets listing only established firms. Even in Europe, until the creation of new stock markets in the mid-1990s, it was extremely difficult to list small high-technology firms(Posner 2000). But, although these stock markets provided an exit opportunity, they did not provide the capital for firm establishment. Put differently, accessible stock markets did not create venture capital for startups; they merely provided an opportunity for raising follow-on capital or an exit opportunity.

India has a strong mutual fund sector that began in 1964 with the formation of the Unit Trust of India (UTI), an open-ended mutual fund, promoted by a group of public sector financial institutions. Because UTI's investment portfolio was to consist of longer-term loans, it was meant to offer savers a return superior to bank rates. In keeping with the risk-averse Indian environment, initially UTI invested primarily in long-term corporate debt. But, UTI eventually became the country's largest public equity owner as well. This was because the government controlled interest rates in order to reduce the borrowing costs of the large manufacturing firms that it owned. These rates were usually set well below market rates, yet UTI and other institutional lenders were forced to lend at these rates. In response, firms started issuing debt that was partially convertible into equity in order to attract institutional funds. By 1985, the conversion of these securities led to UTI becoming the largest owner of publicly listed equity.[16] In 1992, in tandem with banking sector reform, permission to form privately owned mutual funds (including foreign-owned funds) was granted, leading to a gradual erosion in UTI's then-dominant market share.

Mutual funds were not permitted to invest in the venture capital companies. However, since April 1999, mutual funds have been allowed to commit up to 5 percent of their funds as venture capital, either through direct investments or through investment in venture capital

[15] Reserve Bank of India (RBI), *Report on Currency and Finance* (New Delhi: RBI, 1999: 16).

[16] For details, see Unit Trust of India (1985).

firms. But, the mutual funds have not yet overcome their risk-averse nature and invested in venture capital, either directly or indirectly through investment in venture capital funds. Certainly, should the mutual funds decide to invest directly in firms, there would be operational issues regarding the capability of mutual funds to perform the venture capital function. The largest single source of funds for US venture capital funds since the 1980s has been public and private sector pension funds. In India, there are large pension funds but they are prohibited from investing in either equity or venture capital vehicles, thus closing off this source of capital.

In brief, prior to the late 1980s, though India did have a vibrant stock market, the rigid and numerous regulations made it nearly impossible for the existing financial institutions to invest in venture capital firms or in startups. Nearly all of these institutions were politicized, and the government bureaucrats operating them were risk-averse. On the positive side, there was a stock market with investors amenable to purchasing the equity in fairly early-stage companies. It was also possible to bootstrap a firm and/or secure funds from friends and family- if one was well connected. But, no financial intermediaries comfortable with backing small technology-based firms existed prior to the mid-1980s. It is safe to say that insufficient capital was available for any entrepreneurial initiatives. An entrepreneur aiming to create a firm would have to draw upon familial capital or bootstrap their firm.

Thus, Indian financial system shares common characteristics with the bank-based, price-administered financial system experimented in many East Asian economies, however, with the one prominent difference: India followed socialism whereas East Asia adopted capitalism resulting in two distinct corporate ownership regimes. In East Asia corporate ownership came effectively under private hands whereas in India corporate ownership was largely publicly held. Due to this ownership difference, similar financial system created two structurally different EGRs. And, India's EGR was burdened with the political control of corporate ownership exerted through bank-based lending, which clearly hindered the growth of start-ups.

5. THE CRISIS OF FORDIST GROWTH REGIME, RISE OF VENTURE CAPITALISM AND INDIA'S SEARCH FOR THE NEGR

In the 1970s, there were increasing signs of an exhaustion of the Fordist growth regime that led to the dismantling of "wage-labor nexus" and state economic management. 'Keynesian-consensus' started to lose its appeal in favor of 'Washington-consensus'. Signs of growth slowdown heralded the start of a new period of uncertainty, crisis and change. Among the first symptoms was the sharp downturn in rates of profit, stemming from the fall in the efficiency of investment and the increase in the share of wages in the national income. These signs suggested the existence of malfunctions in the core systems of mediation (the relationships, underlying the wage relation, and the market, money and financial systems) and in particular their capacity to absorb and regulate the effects of change in the underlying structure of accumulation and growth. Michael Dunford (2000) identifies five changes, which created crisis of Fordist economic order: 1) the slowdown in the growth of productivity and efficiency of capital; 2) the internationalization of production; 3) financial globalization; 4) the increase in individualism and the associated erosion of solidarity; and 5) the erosion of autonomy of nation-state.

However, from the beginning of the 1980s, there have been pronounced changes in the structure and trajectories of the advanced capitalist countries and their relations with the rest of the world. These included a sharp increase in the degree of global economic integration, the rapid deployment of a new international division of labor, a radical financial market regime change and a major restructuring of the scope and limits of state action. Reacting to these far-reaching changes, global industrial capital started to lose itself free from industrial production function and converted into finance capital. This context led to the global financial liberalization drive based on the neo-liberal McKinnon-Shaw hypothesis.[17] New financial logic coupled with fundamental technological changes became instrumental in powering the rapid development of entrepreneurial finance. In this new wealth creation mechanism, supply of risk capital became lynchpin of the new economic growth regime where competing interests between principle and agent found a new convergence.

The US became a leading country to initiate fundamental changes. Since the early 1960s, the US venture capital industry has established an enviable record of performance. By successfully integrating investment, technological knowledge, and entrepreneurial spirit, venture capital industry has established and attracted a management cadre of highly motivated professionals with the expertise to assist new venture creation. It has been claimed that the liberal financial regime, particularly venture capital has put the United States is in the midst of a great entrepreneurial era. Silicon Valley became the symbol of a new entrepreneurial, innovative corporate culture. Governments in many countries initiated the plan to emulate Silicon Valley's success. US venture capital market, estimated more than $ 48 billion dollar in 1999, up from only $18 billion dollars in 1998 is by far the highest in the OECD area (*Science, Technology and Industry Outlook*, OECD, 2000). The venture capitalism in US has ushered in a new era of economic rennaissance.[18]

At the time of this global entrepreneurial upsurge, India was calculating the losses and gains incurred from largely failed developmental experiment. As the review and assessment of the entire development planning gained momentum, India cautiously moved towards finding a new alternative. India's search for a viable economic growth engine finds inspiration in the evolving US venture capitalism. Furthermore, presence of a strong Indian scientific community in the US acted as a practical link and a powerful catalyst.[19] Many Indians were already a successful name in the United States.[20] Similar to other immigrants,

[17] According to this hypothesis, financial 'deepening' or development is an essential ingredient of capital accumulation process as reflected in savings, investment ratios and their productivity. This in turn contributes to the efficiency of a financial system and subsequent economic growth. It argues that financial deepening is best facilitated by a competitive financial system in which interest rates are market determined and there is an absence or at least insignificance of administratively driven priority credit allocation. For details, see MeKinnon (1973) and Shaw (1973)

[18] For details, see Gompers and Josh (2001: 145-168).

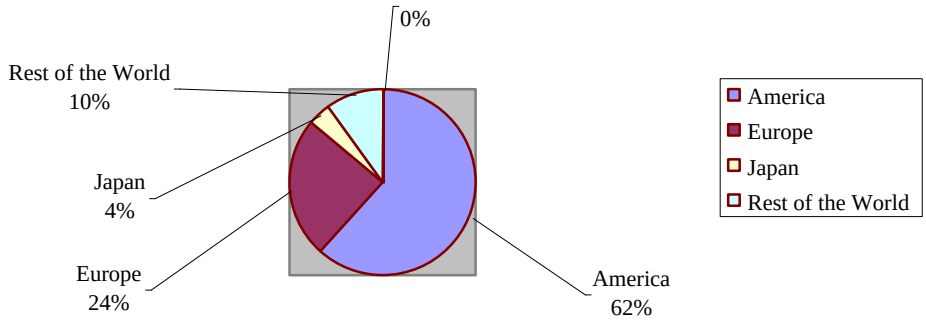
[19] At least 30 percent of the start-up enterprises in Silicon Valley are started/backed by Indians. For details, see http://www.stpi.soft.net/vc_objective.html

[20] The first noteworthy group included Kanwal Rekhi, who co-founded Excelan, a data-networking firm, with three other Indian engineers in 1981. Excelan later was purchased by Novell, leaving Rekhi and the other engineers with enormous capital gains. Another early entrepreneur was Vinod Khosla, who in 1982 had co-founded Daisy Systems, and was a driving force in the establishment of Sun Microsystems. After leaving Sun, he joined the prestigious venture capital firm, Kleiner, Perkins, Caufield and Byers. Yet another Indian engineer, co-founded Metaphor in 1982, Claris in 1987, and in

non-resident Indians (NRIs) remained in contact with their family; friends and classmates back home in India. Moreover, by the late 1980s, the success of the NRIs caught the attention of Indian policymakers. NRIs wished to assist India: they visited India and discussed their experiences in the United States, and expressed a willingness to invest in ventures their friends and classmates might launch in India. They quickly discovered, however, that it was not so simple to transform their willingness to lend capital into the reality of a reasonable investment. But this initiated a process through which the NRIs were re-conceptualized from being "defectors" to being a potential source of knowledge, connections, and even capital (Saxenian 1999).

These efforts coincided with India's readiness to experiment with a new paradigm (Bhagwati 1993). From the perspective of creating venture capital, India had a stock market that with minimal effort could handle public stock offerings from fledgling high-technology firms. There was also a growing IT industry with some firms that experienced extremely fast growth. There was also a cadre of Indians familiar with the operation of the US Silicon Valley, and there were sufficient skilled engineers in India to staff startups. In other words, by 1990 the preconditions for the establishing a successful venture capital industry in India were in place. Diplomatically, India and America grew closer. Former US president Bill Clinton termed India's growing relations with USA as a "technology partnership", which is most visible in the export pattern of India's software industry. Figure 1 shows that USA continues to be India's largest export market by a wide margin with the rest of the world.

Figure 1. Software Export Destinations, 2000-2001 (percent)



Source: Nasscom (2001)

The export pattern of software industry shows the extent to which India emulated the US culture of venture capitalism, which was in many ways reinforced by the informal network of Indians in the Silicon Valley.[21] Thus, the successful US efforts to get over with the crisis of

1991 joined the top-tier venture capital fund, Mayfield Fund. Another successful early Indian entrepreneur was Suhas Patil, who co-founded Cirrus Logic in 1984. These NRIs not only were successful entrepreneurs, but they soon began investing in yet other startups.

[21] The informal network of Indians in the Silicon Valley can be understood by the coordinating activities by the organizations like The Indus Entrepreneurs (Tie). For details, see http://www.tie.org/

Fordist economic order coincided with India's efforts to move beyond the crisis of socialist economic order. In this context, US experiments acted as a guiding framework for India's move towards NEGR.

6. EVOLUTION AND DEVELOPMENT OF VENTURE CAPITAL IN INDIA

The phenomenal success of venture capitalism, particularly in the United States has enormous impact on India's efforts to develop a vibrant venture capital industry. However, until the early 1980s, it was difficult to imagine that India could establish a viable venture capital industry. India's interventionist bureaucratic state with explicit socialist planning produced quite conservative business environment marred with rigid policies often termed as *license raj*. On top of this, its state-control, credit-based financial system provided a very little institutional space for the development of venture capital. In this context, it is not surprising that the first formal venture capital fund was established in the public sector. The first step towards venture capital in India was taken in 1973, when the government appointed a commission to examine strategies for fostering small and medium-sized enterprises (Nasscom 1998).

Under the auspices of the Economic and Scientific Research Foundation of India, a book titled *Risk Capital for Industry* was published(Chitale 1983). The book argued how the Indian financial systems' operation made it difficult to raise "risk capital" for new ventures and proposed various measures to liberalize and deregulate financial market. This publication signaled a political desire to liberalize Indian financial system to effectively foster entrepreneurship.

6.1. The First Phase, 1985-1995

The consequences of socialist planning started to haunt India's political leadership from the early 1980s.[22] Growing recognition of problems in the socialist planning initiated debate about economic liberalization. A policy shift came with the Rajiv Gandhi administration, which took reign in 1984.[23] However, dismantling more than three decades long legacy of socialist market distortions was not an easy job. Thus, until 1988, Indian government had no policy toward venture capital. In fact, there was no formal venture capital industry in India.

[22] During this phase (1950-80), India's annual real GDP per capita growth was merely 1.5 percent, and annual real GDP growth hovered at 3.7 percent, just little over the population growth. This painfully slow economic growth has often been termed as "Hindu Growth Rate." India experimented with the Nehru's Fabian socialism and central planning which created unbelievable quantity of bureaucratic red tape. For details, see Lal (1988).

[23] In the 1980s, Rajiv Gandhi administration initiated the dismantling of heavily regulated economy that provided a breathing space for the Indian economy; real GDP growth averaged 5.6 percent per year and real rupee exports grew at 15 percent per year. The economic reform program that Rajiv Gandhi's government decided upon focused on (a) encouraging capital imports and commodity exports, (b) a modest degree of industrial deregulation, and (c) a modest degree of tax system rationalization. In the government's first year it eliminated quantitative controls on imports of industrial machinery, and cut tariffs on imports of capital goods by 60%.

In 1988, the Indian government issued its first guidelines to legalize venture capital operations (Ministry of Finance 1988). The most important feature of the 1988 rules was that venture capital funds received the benefit of a relatively low capital gains tax rate, i.e., a rate equivalent to the individual tax rate, which was lower than the corporate tax rate. They were also allowed to exit investments at prices not subject to the control of the Ministry of Finance's Controller of Capital Issues. Funds' promoters had to be banks, large financial institutions, or private investors. Private investors could own no more than 20 percent of the fund management companies (although a public listing could be used to raise the needed funds).

However, funds were restricted to invest only in small amounts per firm and the recipient firms had to be involved in new, relatively untried technology. It was also specified that the recipient firm's founders should be professionally or technically qualified. There were also other bureaucratic fetters including a list of approved investment areas. Two government-sponsored development banks, Industrial Credit and Investment Corporation of India (ICICI) and Industrial Development Bank of India (IDBI), were required to review firm's application to a venture capital firm to ensure that it fulfilled the right purposes. In addition, the Controller of Capital Issues of the Ministry of Finance had to approve every line of business in which a venture capital firm wished to invest.

Nonetheless, four state-owned financial institutions established venture capital subsidiaries under these restrictive guidelines and received a total of $45 million from the World Bank, which was keen to develop venture capital in India. The World Bank sought to ensure a level of professionalism in the four new venture capital funds, two of which were established by relatively well-managed state-level financial organizations (Andhra Pradesh and Gujarat), one by a large nationalized bank (Canara Bank) and one by a development finance organization. The World Bank loaned the money to the Indian government that would then re-lend it at commercial rates to these institutions for 16 years, including a seven-year moratorium on interest and principal repayments.

The first truly venture capital operation, Technology Development and Information Company of India (TDICI), was established in 1988 at Bangalore as a subsidiary of the ICICI, India's second-largest development financial institution. ICICI had already had an interest in venture capital investing beginning in 1984. It started a small investing division that focused upon unlisted, early-stage companies(Pandey 1998: 253-261). In 1988, the ICICI division was merged into the newly formed TDICI in Bangalore, which was an equal joint venture between ICICI and the state-run mutual fund Unit Trust of India (UTI). The primary reason for creating the joint venture with UTI was to use the tax pass-through, an advantage that was not available to any corporate firm at that time other than UTI, which received this advantage through a special act of the Parliament.

Several established software firms received funds from the TDICI, including Wipro for developing a "ruggedized" computer for army use. There were several successes, including the firms, which went public, such as VXL, Mastek Software Systems, Microland, and Sun Pharmaceuticals. From its inception up to 1994, the fund had an inflation-adjusted internal rate of return of 28 percent (before the compensation of the venture capitalists), despite several mistakes, such as initially funding several import-substitution products that were negatively affected by a lowering of import tariffs. Despite its difficulties, TDICI was the most successful of the early government-related venture capital operations. Moreover, TDICI trained personnel played an important role in the formalization of the Indian venture capital industry.

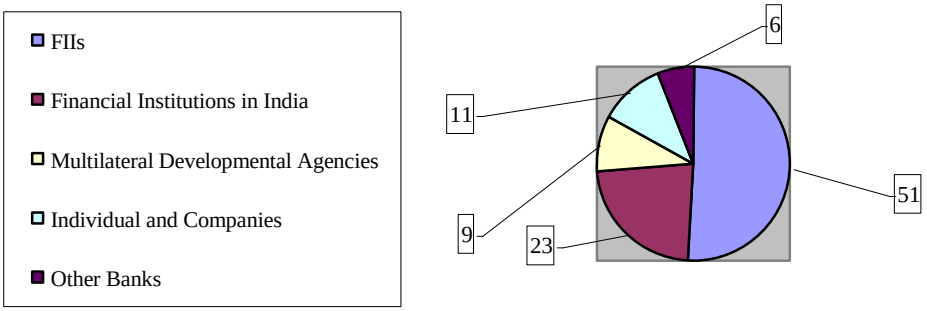
There were other early funds. For example, in 1990, Gujarat Venture Finance Limited (GVFL) began operations. The other two venture funds had only modest success. The Andhra Pradesh state government formed a venture fund subsidiary in its AP Industrial Development Corporation (APDC). Though located in a relatively strong high-technology region around Hyderabad, APDC suffered from all the difficulties of state-operated venture capital funds and also had a relatively low return. CanBank, a subsidiary of nationalized Canara Bank, was the only bank-operated venture capital fund in India. However, CanBank performed only modestly. Despite their rather weak performance, all of these firms raised new funds and were able to continue their operations.

This formulation phase of venture capital industry in India was largely plagued by inexperienced management, mandates to invest in certain states and sectors, and general regulatory problems. The firms' overall performance was very modest, and only TDICI could be considered a success. As mentioned earlier, such problems with government-sponsored venture capital are not unique. Venture capital investing is a difficult art to master. Government interference and limitations almost invariably increase the risks in an already risky enterprise, making failure more likely. Yet, from this disappointing first stage, there came a realization that there actually were viable investment opportunities in India, and a number of venture capitalists had received training (Dossani and Kenney 2002).

6.2. The Second Phase, 1995-2000

During 1980s, Indian success story in the Silicon Valley invited a lot more attention than in the 1990s. This caught attention and encouraged the notion in the United States that India might have more possible entrepreneurs (Dossani and Kenney 2002). Figure 2 shows the distribution of percentage of venture capital under management of different institutions in India. It indicates that the foreign institutional investors hold majority of the funds. This included investment arms of foreign banks, but particularly important were venture capital funds raised abroad. Very often, NRIs were important investors. In quantitative terms, it is possible to see a dramatic change in the role of foreign investors. Also noticeable is the comparative decrease in the role of the multilateral development agencies and the Indian government's financial institutions. The overseas private sector investors became a dominant force in the Indian venture capital industry.

Figure 2. Major Contributors to the Venture Funds (percent)



Source: Nasscom (2000)

In the United States, the venture capital industry is clustered in three specific regions (in order of descending importance): Silicon Valley (San Francisco Bay Area), New York, and Boston. It is significant to note that Silicon Valley and Boston are what can be termed "technology-related" venture capital clusters, while New York is a "finance-related" cluster (Florida and Kenney 1988: 119-137). A similar pattern in India, as shown in the Table 3 indicates that there is also a clustering under way. From 1999 to 2000, Bombay and New Delhi dramatically increased their share of the venture capital offices. This resembles the US historical record, in some ways, and also indicates the immaturity of the Indian industry. As late as 1998, Bombay, Bangalore, and New Delhi were comparable in terms of the number of offices. In contrast to the United States where Silicon Valley asserted its dominance as a technology center at the end of the 1970s Bangalore had a smaller share of offices compared with both Bombay and New Delhi, which are the financial and political capitals of India, respectively. Where there was more than one office, only the headquarters was counted.

Table 3. Location of the headquarters of the members of Indian venture capital association 1993-1998 and 2000

Location	1993	1994	1995	1996	1997	1998	2000
Mumbai	4	3	2	4	5	6	31
New Delhi	3	3	3	2	3	4	10
Hyderabad	1	1	1	1	1	1	1
Banglore	2	2	2	5	5	5	8
Ahmedabad	1	1	1	1	1	1	1
Calcutta	1	1	1	1	1	1	2
Pune	0	0	1	1	1	1	2
Chennai	0	0	0	1	1	1	1
Lucknow	0	0	0	1	1	1	0
Total	11	11	11	17	19	21	56

Source: Indian Venture Capital Association (various years), Nasscom (1998).

However, this apparent weakness of Bangalore is overstated, because the largest venture capital firms in capital terms, i.e., TDICI, Draper, Walden-Nikko, JumpStartup and e4e, are headquartered in Bangalore. In fact, Walden-Nikko closed its Bombay offices in the year 2000 to consolidate in Bangalore. The other important private venture capital firms, such as Chrysalis (Bombay) and Infinity (Delhi), have operations in Bangalore as well.

Among the international players Draper International was the first and others soon followed. In late 1996, the Walden Group's Walden International Investment Group (WIIG) initiated its India-focused venture capital operation. The first fund, Walden-Nikko India Venture Co., was a joint venture between WIIG and Nikko Capital of Japan, investing in early and late-stage companies. In the late 1990s, many more venture capital funds established operations in India (Dossani and Kenney 2002).

The formalization of the Indian venture capital community began in 1993 with the establishment of the Indian Venture Capital Association (IVCA) headquartered in Bangalore.[24] However, IVCA had little success in addressing the main problem of most of its members. According to the Dossani and Kenney (2002), prime reasons for lack of success were: first, the government did not understand the benefits of venture capital in economic development terms. This was a result, in large measure, of the lack of recognition of the potential of the Indian-owned portion of the software industry. Moreover, the venture capital industry was tiny with respect to the overall Indian economy. Hence, they were unable to mobilize sufficient political pressure to motivate further liberalization. Second, the largest player, TDICI, had few reasons to demand changes in the regulations, because it was unaffected by them (and, perhaps, benefited by being able to attract funding away from its taxed brethren).

As late as 1999, the IVCA was still struggling to be an effective lobbying force. In fact, much of the most powerful lobbying for the Indian venture capital industry comes from the Indian information technology industry association NASSCOM. There were internal divisions also. According to one source, in 1999 approximately 80 percent of the total venture capital investments were derived from overseas firms (Singhvi 1999). These foreign firms registered in Mauritius as a strategy to avoid the onerous regulations and taxes imposed by the Indian government — a mechanism that foreign securities firms seeking to invest in India had pioneered. A Mauritius registry allowed tax pass-through, and since they did not have other issues, such as finding funds, they had little incentive to join IVCA or actively lobby the Indian government.

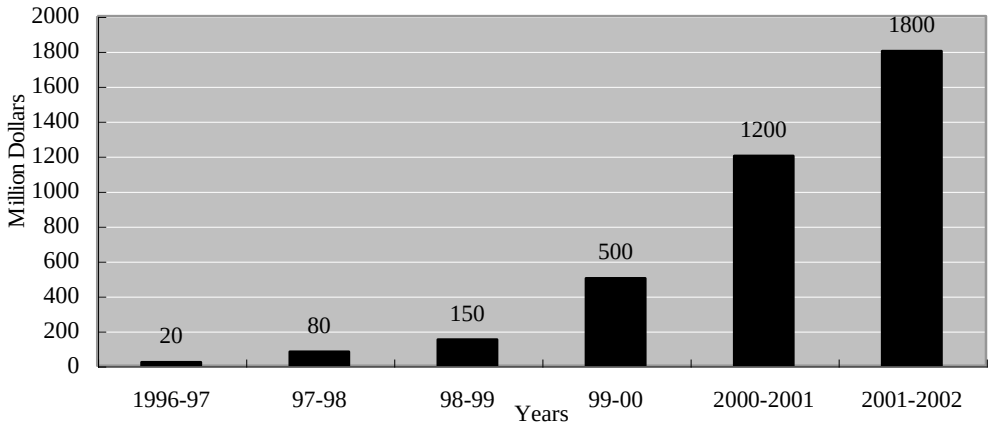
IVCA thus was a vehicle for Indian venture capital funds seeking to obtain a level playing field with the foreign funds. In fact, in the past, differences within IVCA surfaced, with the overseas funds arguing for more regulation from the Foreign Investment Promotion Board, which has a liberal record, and less from the Ministry of Finance, which has a contradictory record. The domestic funds favored a single regulator, and they ultimately won this debate when the Securities and Exchange Board of India (SEBI) was established in 1988. Still, the divisions in the IVCA prevented it from becoming an important player in the regulatory debates during the late 1990s.

Only in 1996 did overseas and truly private domestic venture capitalists begin investing. This increase in investment was accelerated by SEBI's announcement of the first guidelines

[24] The prime mover for this was TDICI's Nadkarni, who became its first president. There were nine members, the state-owned or managed ones being TDICI, GVFL, the Industrial Development Bank of India's venture capital division, RCTC, APIDC's venture capital division, and Canbank Ventures. The private members were Credit Capital Corporation, a joint venture with Commonwealth Development Corporation, headed by investment banker Udayan Bose, headquartered in Mumbai, Indus Ventures of Mumbai (started by T. Thomas, an ex-Unilever board member, and the Mahindra Group), Grindlays (later part of the ANZ banking group, subsequently purchased by Standard Chartered Bank), and the British venture firm 3i Corporation. Initially, the IVCA met only quarterly due to their geographical dispersion. Since the majority of the firms were subsidiaries of the Indian government agencies or banks and received funds from international development agencies, there was little real need for intense interaction. For details, see Dossani and Kenney (2002).

for registration and investment by venture capital firms.[25] Though these changes had a salutary effect, the development of venture capital continued to be inhibited because overall the regulatory regime remained cumbersome. The inhibition is partly expressed in the fact that as of December 1999 nearly 50 percent of the offshore pool of funds had not yet been invested (International Finance Corporation 1999). Nevertheless, it must be noted that during 1999, approximately 80 percent of the estimated US$ 30 billion worth of venture capital invested in United States, went to technology firms. India too, with its strengths in innovation and IT technology has attracted several Venture Capital firms. With all the initial growing pains, venture capital industry took off during this period, particularly in the year 2000. Figure 3 shows the growth of venture capital and angel investments in India.

Figure 3. Growth of Venture Capital and Angel Investment in India



Source: Nasscom (2002).

6.3. Major Policy Initiatives in the Venture Capital Industry

In 1973 a Committee on Development of Small and Medium Enterprises highlighted the need to foster venture capital as a source of funding new entrepreneurs and technology. Therefore some public sector funds were set up but the activity of venture capital did not gather momentum as the thrust was on high technology projects funded on a purely financial rather than holistic basis. Based on a 1998 study undertaken by the World Bank which examined the possibility of developing venture capital in the private sector government of India took a policy initiative and announced guidelines for venture capital funds. However, these guidelines restricted setting up of venture capital funds to the banks or financial institutions only.

Contrary to India's public sector-led venture capital initiative, international trend favored venture capital supplied by smaller-scale entrepreneurial venture financers willing to take

[25] As a part of its mandate to regulate and to develop the Indian capital markets, the SEBI framed the SEBI (Venture Capital Funds) Regulations, 1996. For details, see SEBI Committee Report, at http://www.nasscom.org/sebi.pdf

high risk in the expectation of high returns. By recognizing the failure of public sector-led venture capital fund initiative, government of India issued guidelines in 1995 for overseas investment in the venture capital funds. These guidelines were further streamlined by SEBI (Venture Capital Fund) Regulation, 1996. These new regulations brought a fundamental policy shift regulating venture capital in India. They moved the focus away from the public sector-led initiative to the private sector-led initiative. This decisive policy shift set the stage for takeoff in India's venture capital industry.

Also, recognizing the increasing importance of venture capital, the government introduced major liberalization of tax treatment for venture capital funds and simplification of procedures. These included the following:

- A new clause (23FB) in Section 10 of Income Tax Act was introduced with effect from 1st March 2000. This clause stated that any income, of a venture capital company or a venture capital fund, from any investments made in venture capital undertaking, would not be included in computing the total income.
- Section 115U was also introduced in the Income Tax Act with effect from the assessment year 2001-02 to establish a VC pass through. This means that the VC profits will not be taxed twice. The regulated VC Fund (with SEBI) would be exempted from tax (subject to certain conditions) but the VC investor will have to pay tax.
- Earlier on, if a venture capital fund wished to avail certain tax benefits, the fund had to exit from investments made in a venture capital undertaking (VCU) within twelve months of the VCU obtaining a listing. However, this requirement was done away around November 2000 due to lobby efforts of Nasscom. The Finance Bill 2001 proposes to amend section 10 (23 FB) so as to provide that a venture capital fund will continue to be eligible for exemption under section 10 (23 FB), even if the shares of the VCU, in which the venture capital fund has made the initial investment, are subsequently listed in a recognized stock exchange in India.

7. VENTURE CAPITAL, PRINCIPAL-AGENT INTEREST CONVERGENCE, AND INDIA'S NEGA

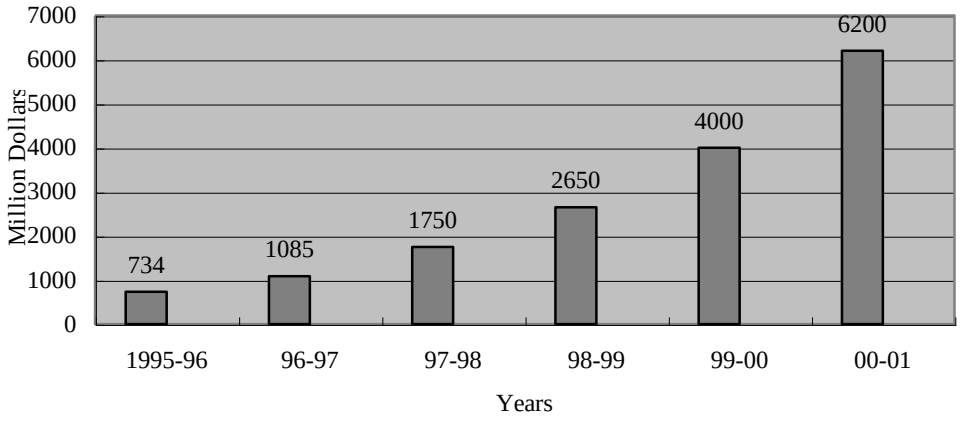
The above outline of India's venture capital industry indicates that apart from various initial problems venture capital in India is making headway. It is important to note that successful venture industry requires a rigorous financial and economic liberalization too. The most important contribution of venture capital industry in India is that it has shaken the pillars of old interventionist system where bank lending was mostly risk averse. It influenced the direction of reforms in the Indian financial system. Most importantly, venture capital is playing an important role in mitigating interest conflict between principal/investor and agent/entrepreneur.[26] This conflict resolution has provided a solid basis for convergence of interest between finance, technology, and entrepreneurship. This convergence is clearly visible in India's emerging knowledge economy, particularly in its software service industry. India's homegrown software companies such Infosys Technologies, Tata Consultancy Services (TCS), and Wipro emerged as the global players with billion dollar plus revenue

[26] Literature on financial contracting theory has confronted the problem of interest conflict between the financer and who needs financing. India's financial system has been marred with the problem. For more details about this theory see Hart (2001).

trajectory, and in process India became the global hub of 'offshoring' IT enabled services. The Indian software industry has grown from a mere US $ 150 million in 1991-92 to a staggering US $ 5.7 billion (including over $4 billion worth of software exports) in 1999-2000**.** The software industry has emerged as one of the fastest growing sectors in the economy with compound annual growth rate exceeding 50 percent.

Indian economy which grew at a snail's pace during the decades just after the independence. Economic growth during the First plan period (I951-56) was 3.6 percent, Second Plan period (1956-61) 4.1 percent, Third Plan Period (1961-66) 2.5 percent, Annual Plan (1966-69) 3.8 percent, and Fourth Plan (1969-74) 3.3 percent. Between 1991 and 2001, the Indian economy has grown at an average rate of 6.4 percent per year since 1992-93 compared to the 5.8% recorded in the 1980s. This growth jump is attributable to the extraordinary growth spurt in the IT software segment. According to a NASSCOM-McKinsey report (2000), annual revenue projections for India's IT industry in 2008 are US $ 87 billion with software & services will contribute over 7.5 % of the overall GDP growth of India. IT Exports will account for 35% of the total exports from India. Many experts say that India's splash in the global service market place can only be compared with China's rise in the global manufacturing. Figure 4 shows the rapid development of India's software industry, which results from the interest convergence between principal and agent.

Figure 4. India's IT Software and Related Services Export Indsutry (1995-2001)



Source: Nasscom (2001).

More than propelling India's software industry, rising venture funds have been instrumental in transforming the national thinking about development and growth. Large number of scientist and engineers were motivated to experiment with their ideas in the real world of business. By being more than just an instrument of supplying risk capital, entry of venture funds in India was hailed as an outlet for the millions to cherish a dream to be economically independent. India's resource endowment, particularly its large pool of intangible knowledge resources, was given a concrete direction with easily available VC funds. They ignited dormant entrepreneurial forces and unlocked the potential of India's

large intellectual reservoir.[27] In a society where doing business carries less social value, venture capital provided a new social status to the people who were able to experiment with their ideas for a real business and product development. One famous example is Sabir Bhatia, who was instrumental in establishing a web-based 'hotmail' e-mail service, and became a star overnight.[28]

Availability of finance is an important factor in facilitating entrepreneurial activity. This is particularly true in the early stages of new ventures. New and growing firms do not easily obtain equity funding. Debt funding is relatively easy to obtain, but only after equity funds are in place. Private investors have always been an important source for capital especially in some communities, and in the non-organized sectors. The data indicate that India is close to average with the other countries of the Global Entrepreneurship Monitor (GEM) 2001 study. It is marginally higher than the GEM 2001 average for debt funds. It is close to the average for equity funds, public subsidies, private investments, and venture capital. Government policy in the past was directed at providing support to small firms and public subsidies have had an impact on new firm creation. Some of these policy initiatives have provided an incentive for the small firms to remain small, so that they could continue to enjoy the benefits under the government schemes. However, increasingly, sources of start-up funds in India are coming from the banking and financial institutions. Table 4 shows that after self-financing banking and financial institutions play the dominant role by providing 55.2 percent of funds.

Table 4. Sources of Start-up Funds in India, 2001

	Autonomous start-ups	
	Number	Percentage
1. Self	98	68.1
2. Banks/Financial institutions	79	55.2
3. Close family members	66	45.5
4. Government programs	31	21.7
5. Colleagues at work	16	11.0
6. Friends & neighbors	15	10.4
7. Relatives	14	9.8
8. Employer	4	2.8
9. Other sources	5	3.5

Source: GEM, India Report (2001: 38)

[27] The Commonwealth Knowledge Network states that the stock of science and technology (S&T) manpower in India is 6.3 million. For details, see Pachauri (2001). http://www.teriin.org/features/art117.htm

[28] Hotmail.com was created by the financing from a venture firm, which became so popular that Microsoft Corp. paid approximately 400 million dollars to acquire it. For details, see *The Economic Times*, 15 January 2002. http://www.economictimes.com/articleshow.asp?catkey= 121385957&art_id =691483051&sType=1

Among the banking and other financial sources of funding new ventures, VCs are increasingly taking center stage which is providing an important rationale and a strong basis for a unique convergence of developmental forces. The availability of risk capital motivated knowledge workers to experiment with the new ideas. VCs became important source of funds for the new firms. Table 5 indicates how VCs are becoming an important source of funds for the new ventures in India. By showing GEM average where India demonstrates higher VC funding than the global average, VCs' increasing role demonstrates a new entrepreneurial surge in India.

Table 5. Financial Support to New Firms in India, 2001

Scale: 1- Completely False 5- Completely True	INDIA 2000	INDIA 2001	LOWEST	HIGHEST	AVERAGE GEM 2001
Equity funds for new/growing firms available	1.69	3.14	2.18 Argentina	4.17 USA	3.17
Debt funds for new/growing firms available	2.03	3.54	1.82 Argentina	4.19 USA	3.05
Public subsidies promote startups	3.23	3.14	1.39 Argentina	4.16 Germany	3.13
Private individuals are an important source of funds	3.36	3.23	1.93 Brazil	4.62 USA	3.26
VCs are an important source of funds	2.89	3.22	1.87 Italy	4.57 USA	3.21
IPOs are an important source of funds	3.38	N.A	1.21 Argentina	4.19 Germany	3.22
AVERAGE	3.19	3.18	1.99 Argentina	4.30 USA	3.08

Source: GEM, India Report (2001: 19).

For the first time in India, many experienced scientist and professionals quit their jobs to establish new ventures.[29] The rate of new business creation in India has shot up. Furthermore, in the year 2000, India registered one of the highest growth rates in the patent registration in the world. Surging knowledge exports testifies dynamic impact of this convergence, which is contributing increasingly larger share in India's overall economic growth.

7.1. Contours of India's New Economic Growth Regime

The collapse of Soviet bloc and the balance of payments crisis in India shook the very foundations of 'Mahalanobis model'.[30] It provided Indian policy makers with both

[29] Not only software sector but also increasingly venture capital funds are moving to the life sciences and biotechnology. For details, see Bhattacharya (2002).

[30] Mahalanobis was born in Calcutta on 29 June 1893, graduated from King's Collage, Cambridge, in 1915. He became an extraordinary statistician and made remarkable contributions to both theoretical and applied statistics. He influenced Indian planning for more than three decades. For his economic viewpoint, see Mahalanobis (1969).

opportunity to launch a comprehensive structural reform program and a grave challenge to abandon decades long socialist planning. In the ensuing debate about the direction of economic reforms, policy makers quickly reached a consensus that strategic roll back of state from the active economic interventionism is the only viable choice left.[31] A careful scrutiny of India's resource endowment persuaded policy makers that nation should not become another 'gee' in the East Asia's export dependent "flying gees model." Also, there was a consideration of China's head start in adopting East Asia's export promotion industrial strategy, which left almost no room for India's similar manufacturing expansion. This context pushed India to opt for a radically different EGR.

After losing the chance to construct a viable EGR, India took cautious initiatives to design a NEGR in the 1990s. By utilizing revolutionary changes in the technological and financial spheres, India has thrown open itself for the new experiment. The old economic power centers where state traditionally had a commanding height started to give way to dynamic market forces. Though it's still in the infant stage, but quite clearly the key variable of emerging NEGR are entrepreneurial finance, technological knowledge, and entrepreneurship. The achievements of present NEGR contrast with India's largely failed post-independent efforts to accelerate economic growth. Economic growth record of the 1990s clearly highlights this growth contrast.[32]

In the 1990s, Indian economy witnessed growth acceleration due to the expanding knowledge economy led by software industry.[33] The performance of new ventures out-competed established business ventures. The list of India's richest people was flipped over.[34] Cities such as Banglore, and Hydrabad became known to the outside world for their high-tech entrepreneurship. Most important aspect of this NEGR is the new found belief that a developing economy can take the liberalization path to move up in the prosperity ladder. Until recently the conventional wisdom, based on the post-war East Asian economic expansion, suggested that a strong developmental state is needed to steer developing economies. India's NEGR shows that predominance of market logic over political logic has its merit. Thus, by not opting for a tested East Asian developmental route India is testing a new growth path, where large-scale disinvestments by PSUs is rolling back state and introducing market-based developmental logic. The centrality of entrepreneurial dynamism in India's NEGR has demonstrated in the fast growing knowledge industries. It may not match the initial state mobilized high growth path of East Asia's tiger economies, but in the longer-term India's NEGR offers a re-thinking about the strategies of catch-up developmentalism.

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[31] Government has initiated a wide-ranging disinvestments program where it has sold stakes in the public sector units (PSUs) ranging from one per cent to 40% in 40 PSUs. Disinvestment of equity in 40 PSUs has risen about Rs12 billion ($ 2.8 bn).

[32] In the 1990s, Indian economy posted more than 6 percent growth rate.

[33] By recording double-digit growth, India's software industry led the way followed by knowledge-based pharmaceutical, biotechnology, media, and entertainment industry.

[34] The richest Indian in the world are Azim Premji with a net income of $6.9 billion; at second place, Dhirubhai Ambani with a net worth of $3.4 billion; third, Shiv Nadar with a net worth of $2.2 billion are the product of new growth regime in India. There are other Silicon Valley Indians such as Vinod Khosla, co-founder of Sun Microsystems, who has net worth of $1 billion; I2 Technologies' Sanjiv Sidhu with a net worth of $3.7 billion. For details, see http://news.indya.com/forbesbillionaires.html

8. CONCLUSION

The paper concludes that the key to understanding inner logics behind India's evolving NEGR lies in the workings of entrepreneurial finance, particularly venture capital. It has been clearly documented that there is a strong interdependence between the structure of finance and the nature of national EGRs. In the past, distinct financial structures of Japan, Germany, and USA have created structurally diverse EGRs.

Theoretical arguments set forth in this paper clarify the important role of venture capital in punctuating the old equilibrium. It has been noted that by mitigating the conflict of interest between principal/investor and agent/entrepreneur, Indian venture capital industry has tilted the balance in favor of risk taking and experimenting with the new ideas. It has successfully created convergence between finance, technology and entrepreneurship. This convergence provides a firm ground for a NEGR, which is based on the competitive market logic rather than political logic of interventionist state.

By examining the development of venture capital in India, this paper intends to empirically demonstrate that changes in the financial logics and regimes can alter the balance between different developmental actors. Data shows that the rise of venture capital signals new power balance among economic actors, where state is in the process of moving out from the economic management by large-scale divestment of public ownership, and a NEGR consists of innovative finance, technological know-how and entrepreneurial spirit is taking over.

In terms of direction in the policy making, this paper highlights that reorganization of a national EGR requires a much more comprehensive and fundamental adjustment in the financial system than currently contemplated in the debates regarding the problems observable in the economic growth front. By acknowledging the fact that the efficient functioning of any EGR largely depends on the structures of finance, this paper argues for a cautious innovation in the financial sector. Given the interdependence between structures of finance and EGRs; any attempt to reformulate new growth patterns must implement reforms in the financial system. The growth of venture capital industry in India amounts to such a financial innovation, which is integrating interests of diverse developmental actors and in process creating a NEGR.

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Jitendra Uttam. Research Associate of Center for East Asian Studies, School of International Studies, Jawaharlal Nehru University, New Delhi –110067, India. Tel: 91-11-2670-4346. E-mail: juttam@mail.jnu.ac.in